Formation of Industry consortium

Communication and Control Systems for Distributed Energy Skamania Lodge, Stevenson, Washington 24-25 October 2002

Landis Kannberg, DOE/PNNL Ali Ipakchi, Alstom Nick Noecker, IBM Sunil Cherian, Spirae



Why an industry consortium?

Is this any different from all the other consortia/associations/collaboratives out there?

Whose idea is this anyway?

Who are the stakeholders that will make up the consortium?

What do I get out of it?

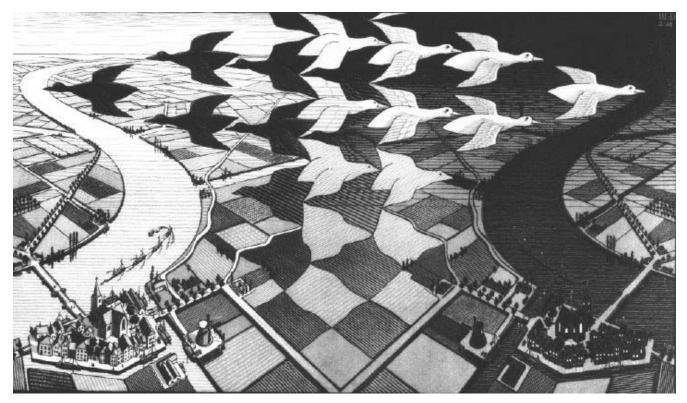
Who is going to fund this effort?

What will it cost me?

When are we going to see some results?



Making Escher proud: The DER paradox



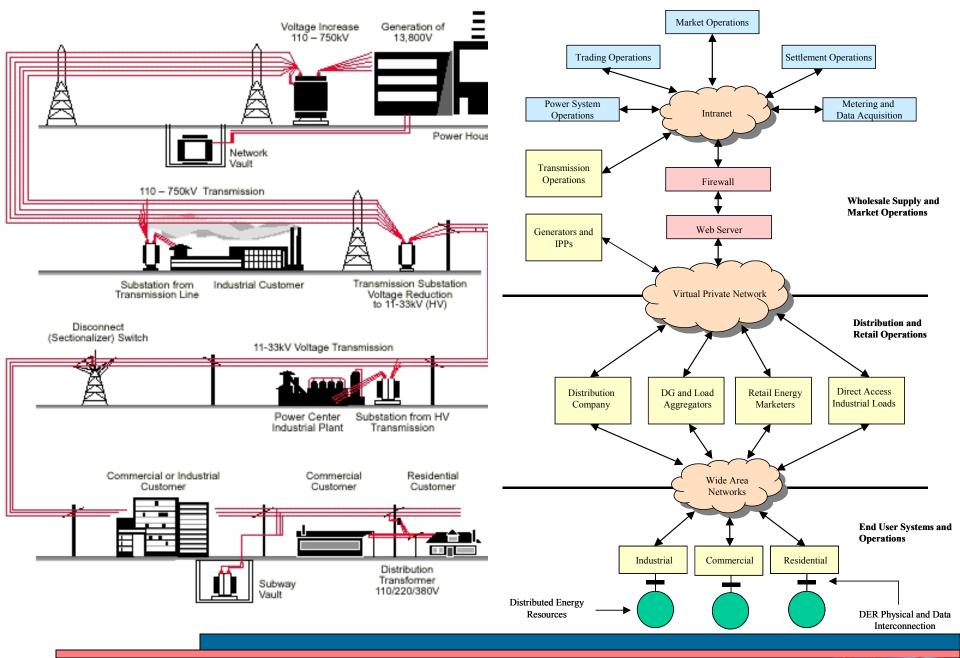
Supply Side

Mega-geese and Nega-geese?

Demand Side

DER business models: How do I catch me one of them ducks?



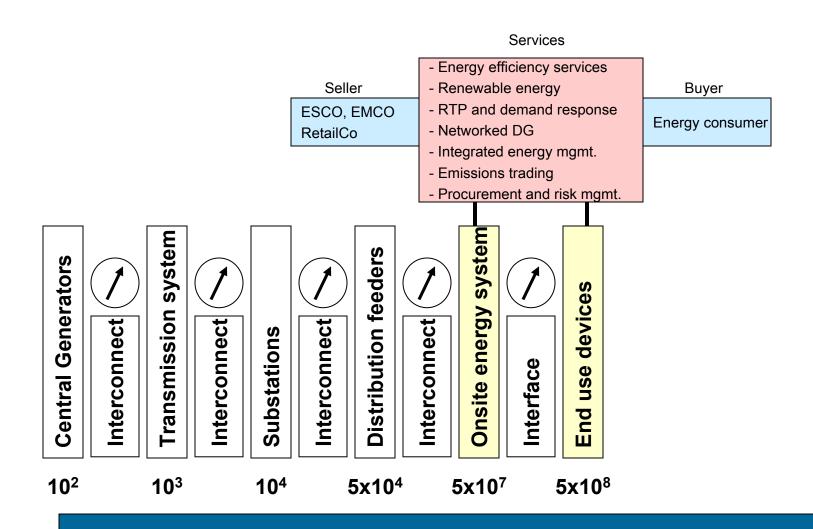




Sec		W		#		
10 ^{-6<}	Lightning, switching surges	10 ¹²	NA's total electricity generation			
10-4	Sub synchronous resonance	10 ⁹	Central thermal power plant	10 ²	Central Generators	
10 ⁻³	Frequency control	10 ⁸	Large factories			
10-2	Voltage control	10 ⁷	Medium factories, large buildings	10 ³	Transmission system	
10 ⁻¹	SCADA communications	10 ⁵	Car engine, supermarket	10 ⁴	Substations	
10 ⁰	Transient and dynamic stability	10 ³	US household electricity use			
10 ¹	Ramping, load following	10 ²	Desktop comp., television, lamp	104	Distribution feeders	
10 ²	Economic dispatch	10 ¹	Notebook, 1m ² of US office	10 ⁷	Ongita anargy system	
10 ³	Unit commitment, trading	10º	Cellular phone	10.	Onsite energy system	
10 ^{6>}	Generation and T&D Planning	10 ⁻¹	Small Portable radio	10 ⁸	End use devices	
Timescales within the energy system			Energy generation and consumption range		Devices within the energy system	
Source: RMI Source: RMI Western US. Source: PNNL						

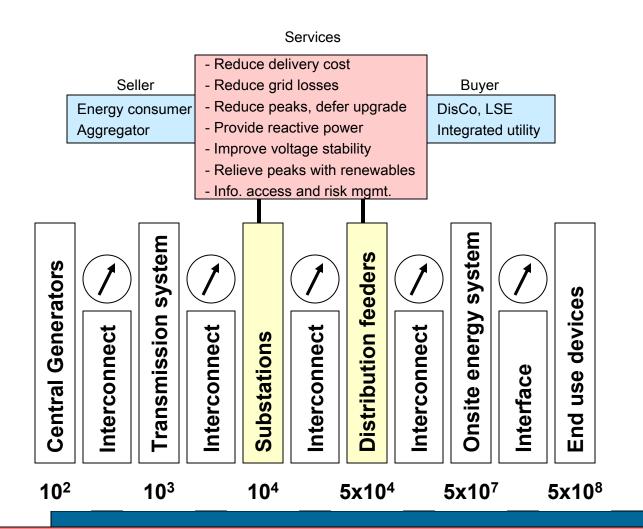


Valuing Distributed Energy and Energy Services



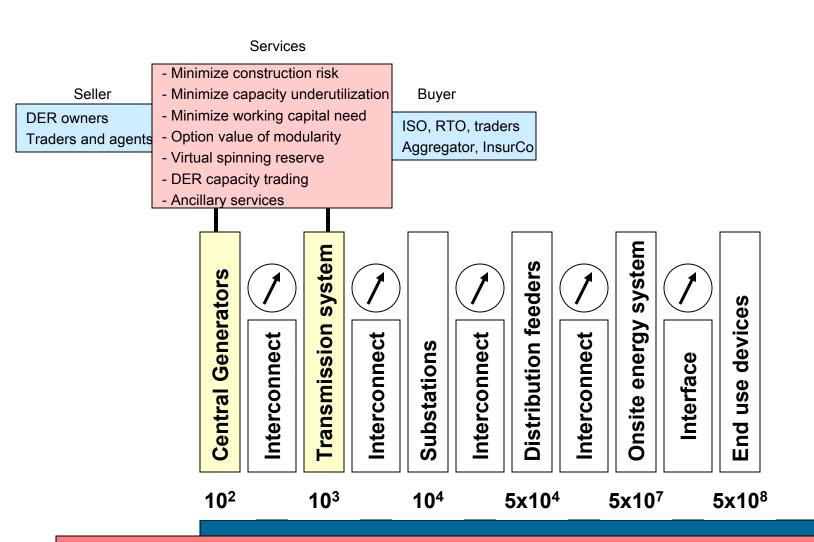


Valuing Distributed Energy and Energy Services



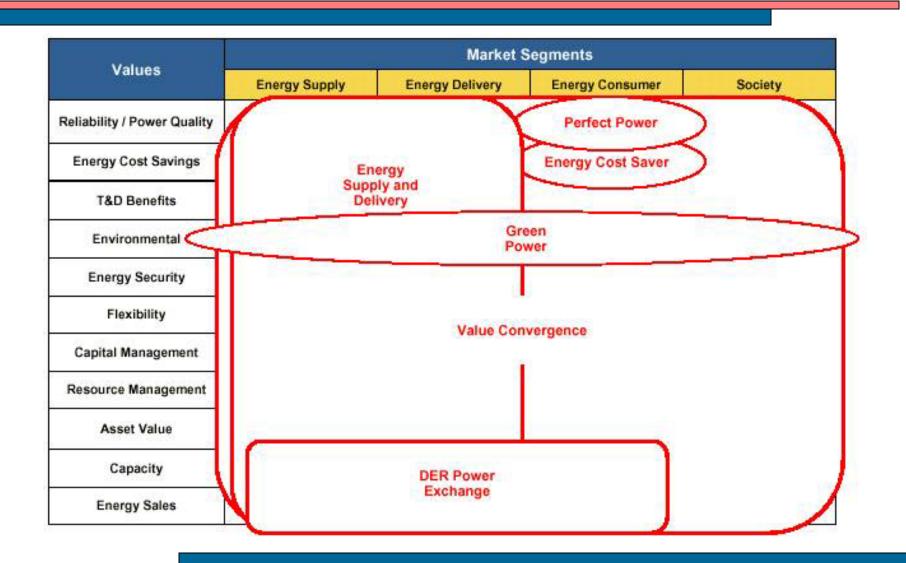


Valuing Distributed Energy and Energy Services



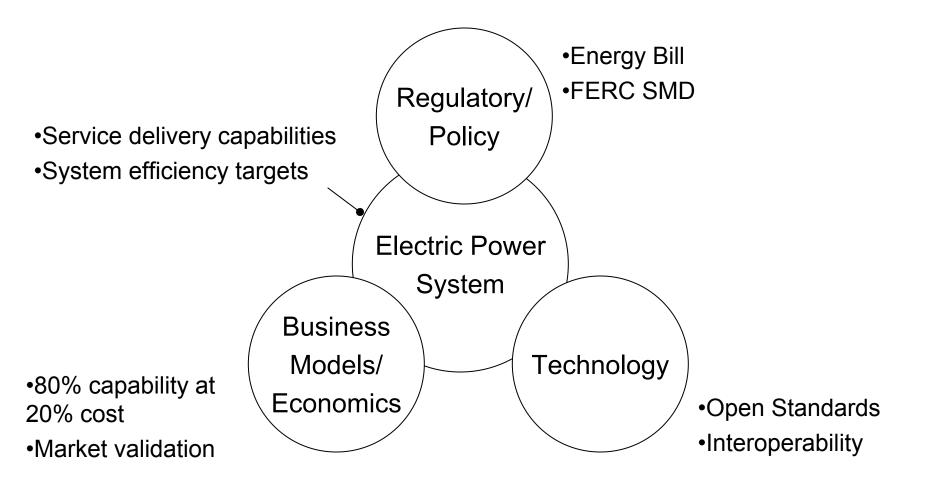


The complexity of the energy "duck-space"

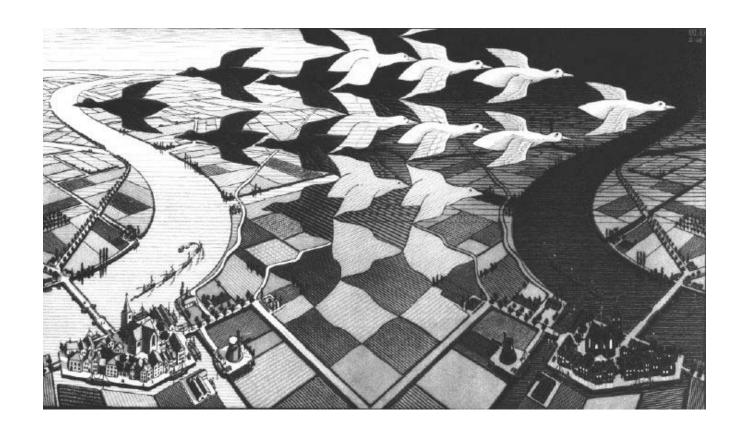




Actions that make sense



Working together to overcome the Distributed Energy paradox





Can I have some roast duck please?

You cannot sell what you cannot value (you can give it away or ask for arbitrary prices),

You cannot value what you cannot measure,

You cannot measure what you cannot distinguish, and

You cannot distinguish what you don't know.

And of course, when you are in sales, you don't care to know much about what you are not selling.

